The Ink Transfer in the Area of Halftone Dots

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Mr. Chairman, Ladies and Gentlemen,

This paper about the ink splitting in the half-tone dot range deals mainly with the testing technique and is limited to characterising measuring results.

In order to study the processes which take place during ink splitting, Zettlemoyer, Walker, Fetsko and Meyrs[1], Sjodahl[2], Howard and Jones[3] as well as Blokhuis[4] have applied methods of high-speed photography.

In this present work an ultra-rapid flasher has been used which is described as follows: The essential part of this device is the circulating microscope connected to an ink splitting apparatus. The microscope is supplied with a rotating light by means of a suitable system from a controllable spark light source[5].

Fig. 1

Exposure Device

Fig. 2

Microscopic Testing Device connected to Ink Splitting Apparatus

In this way an isolated half-tone dot corresponding to a dot area of a letterpress forme remains in the field of vision of the microscope during cylinder revolution. The testing apparatus which is connected to a printing press is further provided with an inking device and a measuring device for

the surface temperature of the cylinder during operating conditions. For the present fundamental tests these systems were not yet applied in order to simplify matters.

The following illustrations show testing results.

Fig. 3 .....

Testing Results

As you will see, the ink splitting procedure can be clearly analysed in this manner by means of the deformation behaviour of the strings or filaments. Since the chronological order of the phase-photos is known and since it can be greatly varied, the times taken to reach the maximum string length during break-off and for the re-formation of the broken string with different inks and varying test conditions, are measurable.

The Institut für Druckmaschinen und Druckverfahren of the Technische Hochschule Darmstadt will carry out such tests in the near future. With the aid of this device the ink transfer procedure in rotogravure will also be tested.

I should like to take this opportunity of thanking all those who contributed to the success of this study. Special thanks are due to Professor Dr. Eschenbach, to those members of the Institute who co-operated with me, and to the Forschungsgesellschaft Druckmaschinen.

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5) F. Früngel: Ein neues Hochfrequenz-Blitzgerät für lange Blitzserien (25000/sec) sowie Anwendungen gesteuerter Einzelblitze in der Spannungsoptik. Zeitschrift für angewandte Physik, 8.Bd. 2.Heft, 1956, S.86-90.

Fig. 1

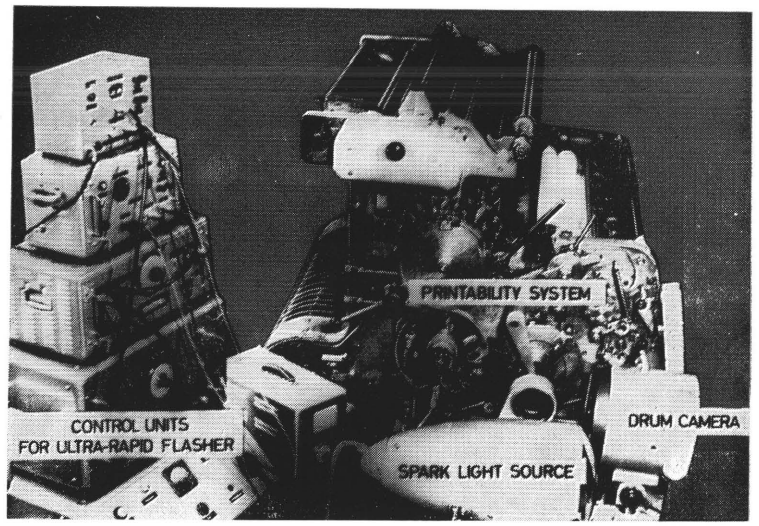

Fig. 2

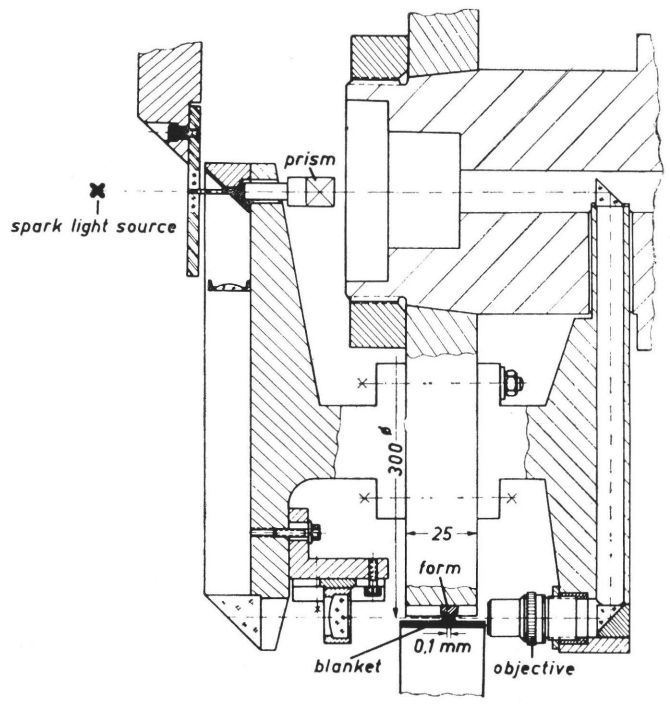

Fig. 3

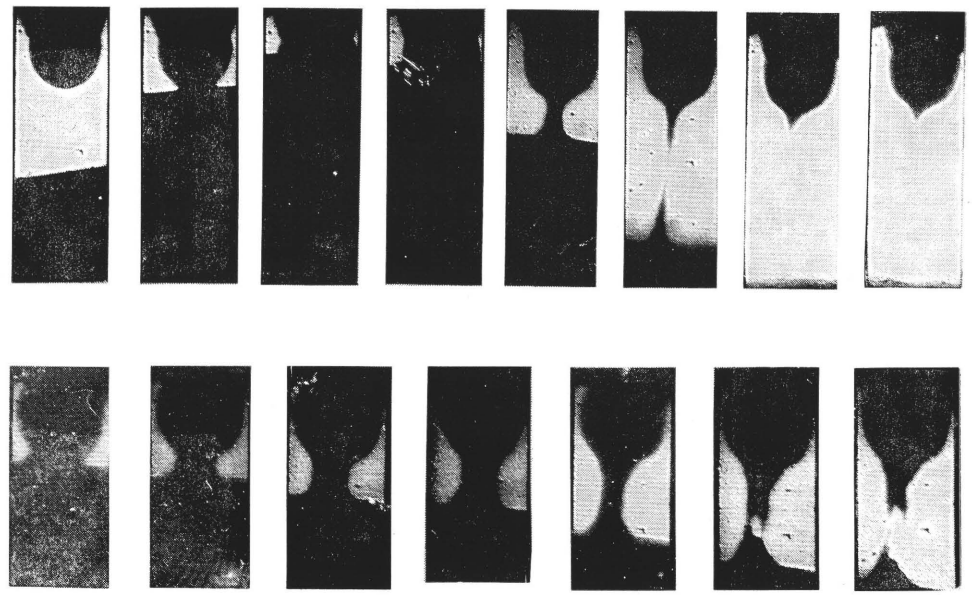

Fig. 4

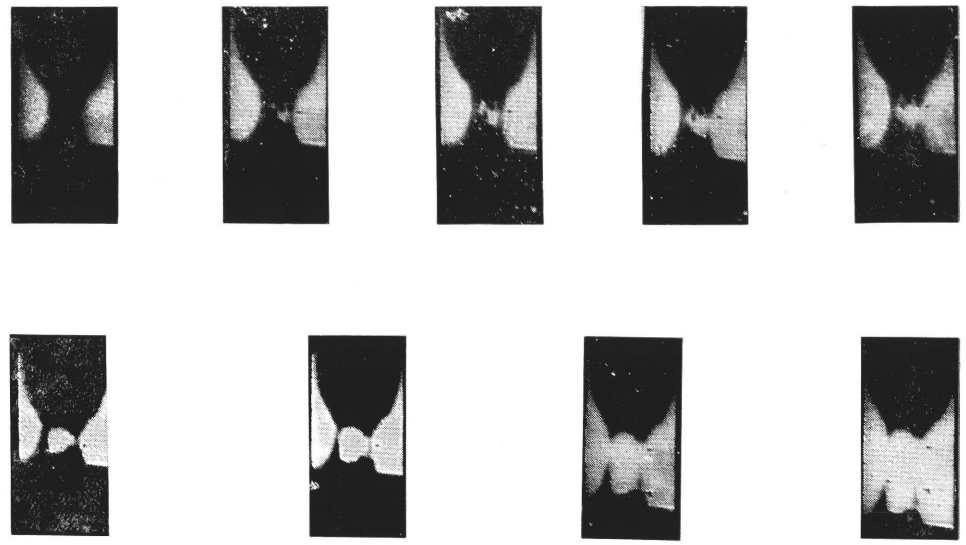

Fig. 5